NATIONAL CERTIFICATES (VOCATIONAL)

ASSESSMENT GUIDELINES

CONSTRUCTION PLUMBING
NQF Level 3

September 2007
CONSTRUCTION PLUMBING – LEVEL 3

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SECTION A: PURPOSE OF THE SUBJECT ASSESSMENT GUIDELINES

This document provides the lecturer with guidelines to develop and implement a coherent, integrated assessment system for Construction Plumbing in the National Certificates (Vocational). It must be read with the National Policy Regarding Further Education and Training Programmes: Approval of the Documents, Policy for the National Certificates (Vocational) Qualifications at Levels 2 to 4 on the National Qualifications Framework (NQF). This assessment guideline will be used for National Qualifications Framework Levels 2-4.

This document explains the requirements for the internal and external subject assessment. The lecturer must use this document with the Subject Guidelines: Construction Plumbing to prepare for and deliver Construction Plumbing. Lecturers should use a variety of resources and apply a range of assessment skills in the setting, marking and recording of assessment tasks.

SECTION B: ASSESSMENT IN THE NATIONAL CERTIFICATES (VOCATIONAL)

1 ASSESSMENT IN THE NATIONAL CERTIFICATES (VOCATIONAL)

Assessment in the National Certificates (Vocational) is underpinned by the objectives of the National Qualifications Framework (NQF). These objectives are to:

- Create an integrated national framework for learning achievements.
- Facilitate access to and progression within education, training and career paths.
- Enhance the quality of education and training.
- Redress unfair discrimination and past imbalances and thereby accelerate employment opportunities.
- Contribute to the holistic development of the student by addressing:
  - social adjustment and responsibility;
  - moral accountability and ethical work orientation;
  - economic participation; and
  - nation-building.

The principles that drive these objectives are:

- **Integration**
  To adopt a unified approach to education and training that will strengthen the human resources development capacity of the nation.

- **Relevance**
  To be dynamic and responsive to national development needs.

- **Credibility**
  To demonstrate national and international value and recognition of qualification and acquired competencies and skills.

- **Coherence**
  To work within a consistent framework of principles and certification.

- **Flexibility**
  To allow for creativity and resourcefulness when achieving Learning Outcomes, to cater for different learning styles and use a range of assessment methods, instruments and techniques.

- **Participation**
  To enable stakeholders to participate in setting standards and co-ordinating the achievement of the qualification.

- **Access**
  To address barriers to learning at each level to facilitate students’ progress.
• **Progression**  
To ensure that the qualification framework permits individuals to move through the levels of the national qualification via different, appropriate combinations of the components of the delivery system.

• **Portability**  
To enable students to transfer credits of qualifications from one learning institution and/or employer to another institution or employer.

• **Articulation**  
To allow for vertical and horizontal mobility in the education system when accredited pre-requisites have been successfully completed.

• **Recognition of Prior Learning**  
To grant credits for a unit of learning following an assessment or if a student possesses the capabilities specified in the outcomes statement.

• **Validity of assessments**  
To ensure assessment covers a broad range of knowledge, skills, values and attitudes (SKVAs) needed to demonstrate applied competency. This is achieved through:
  - clearly stating the outcome to be assessed;
  - selecting the appropriate or suitable evidence;
  - matching the evidence with a compatible or appropriate method of assessment; and
  - selecting and constructing an instrument(s) of assessment.

• **Reliability**  
To assure assessment practices are consistent so that the same result or judgment is arrived at if the assessment is replicated in the same context. This demands consistency in the interpretation of evidence; therefore, careful monitoring of assessment is vital.

• **Fairness and transparency**  
To verify that no assessment process or method(s) hinders or unfairly advantages any student. The following could constitute unfairness in assessment:
  - Inequality of opportunities, resources or teaching and learning approaches
  - Bias based on ethnicity, race, gender, age, disability or social class
  - Lack of clarity regarding Learning Outcome being assessed
  - Comparison of students’ work with other students, based on learning styles and language

• **Practicability and cost-effectiveness**  
To integrate assessment practices within an outcomes-based education and training system and strive for cost and time-effective assessment.

2 **ASSESSMENT FRAMEWORK FOR VOCATIONAL QUALIFICATIONS**

The assessment structure for the National Certificates (Vocational) qualification is as follows:

2.1 **Internal continuous assessment (ICASS)**  
Knowledge, skills values, and attitudes (SKVAs) are assessed throughout the year using assessment instruments such as projects, tests, assignments, investigations, role-play and case studies. The internal continuous assessment (ICASS) practical component is undertaken in a real workplace, a workshop or a "Structured Environment". This component is moderated internally and externally quality assured by Umalusi. All internal continuous assessment (ICASS) evidence is kept in a Portfolio of Evidence (PoE) and must be readily available for monitoring, moderation and verification purposes.

2.2 **External summative assessment (ESASS)**  
The external summative assessment is either a single or a set of written papers set to the requirements of the Subject Learning Outcomes. The Department of Education administers the theoretical component according to relevant assessment policies.
A compulsory component of external summative assessment (ESASS) is the integrated summative assessment task (ISAT). This assessment task draws on the students’ cumulative learning throughout the year. The task requires integrated application of competence and is executed under strict assessment conditions. The task should take place in a simulated or “Structured Environment”. The integrated summative assessment task (ISAT) is the most significant test of students’ ability to apply their acquired knowledge.

The integrated assessment approach allows students to be assessed in more than one subject with the same integrated summative assessment task (ISAT).

External summative assessments will be conducted annually between October and December, with provision made for supplementary sittings.

3 MODERATION OF ASSESSMENT

3.1 Internal moderation
Assessment must be moderated according to the internal moderation policy of the Further Education and Training (FET) college. Internal college moderation is a continuous process. The moderator’s involvement starts with the planning of assessment methods and instruments and follows with continuous collaboration with and support to the assessors. Internal moderation creates common understanding of Assessment Standards and maintains these across vocational programmes.

3.2 External moderation
External moderation is conducted by the Department of Education, Umalusi and, where relevant, an Education and Training Quality Assurance (ETQA) body according to South African Qualifications Authority (SAQA) and Umalusi standards and requirements.

The external moderator:
- monitors and evaluates the standard of all summative assessments;
- maintains standards by exercising appropriate influence and control over assessors;
- ensures proper procedures are followed;
- ensures summative integrated assessments are correctly administered;
- observes a minimum sample of ten (10) to twenty-five (25) percent of summative assessments;
- gives written feedback to the relevant quality assuror; and
- moderates in case of a dispute between an assessor and a student.

Policy on inclusive education requires that assessment procedures for students who experience barriers to learning be customised and supported to enable these students to achieve their maximum potential.

4 PERIOD OF VALIDITY OF INTERNAL CONTINUOUS ASSESSMENT (ICASS)

The period of validity of the internal continuous assessment mark is determined by the National Policy on the Conduct, Administration and Management of the Assessment of the National Certificates (Vocational).

The internal continuous assessment (ICASS) must be re-submitted with each examination enrolment for which it constitutes a component.

5 ASSESSOR REQUIREMENTS

Assessors must be subject specialists and should ideally be declared competent against the standards set by the ETDP SETA. If the lecturer conducting the assessments has not been declared a competent assessor, an assessor who has been declared competent may be appointed to oversee the assessment process to ensure the quality and integrity of assessments.

6 TYPES OF ASSESSMENT

Assessment benefits the student and the lecturer. It informs students about their progress and helps lecturers make informed decisions at different stages of the learning process. Depending on the intended purpose, different types of assessment can be used.
6.1 Baseline assessment
At the beginning of a level or learning experience, baseline assessment establishes the knowledge, skills, values and attitudes (SKVAs) that students bring to the classroom. This knowledge assists lecturers to plan learning programmes and learning activities.

6.2 Diagnostic assessment
This assessment diagnoses the nature and causes of learning barriers experienced by specific students. It is followed by guidance, appropriate support and intervention strategies. This type of assessment is useful to make referrals for students requiring specialist help.

6.3 Formative assessment
This assessment monitors and supports teaching and learning. It determines student strengths and weaknesses and provides feedback on progress. It determines if a student is ready for summative assessment.

6.4 Summative assessment
This type of assessment gives an overall picture of student progress at a given time. It determines whether the student is sufficiently competent to progress to the next level.

7 PLANNING ASSESSMENT
An assessment plan should cover three main processes:

7.1 Collecting evidence
The assessment plan indicates which Subject Outcomes and Assessment Standards will be assessed, what assessment method or activity will be used and when this assessment will be conducted.

7.2 Recording
Recording refers to the assessment instruments or tools with which the assessment will be captured or recorded. Therefore, appropriate assessment instruments must be developed or adapted.

7.3 Reporting
All the evidence is put together in a report to deliver a decision for the subject.

8 METHODS OF ASSESSMENT
Methods of assessment refer to who carries out the assessment and includes lecturer assessment, self-assessment, peer assessment and group assessment.

<table>
<thead>
<tr>
<th>LECTURER ASSESSMENT</th>
<th>The lecturer assesses students’ performance against given criteria in different contexts, such as individual work, group work, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SELF-ASSESSMENT</td>
<td>Students assess their own performance against given criteria in different contexts, such as individual work, group work, etc.</td>
</tr>
<tr>
<td>PEER ASSESSMENT</td>
<td>Students assess another student’s or group of students’ performance against given criteria in different contexts, such as individual work, group work, etc.</td>
</tr>
<tr>
<td>GROUP ASSESSMENT</td>
<td>Students assess the individual performance of other students within a group or the overall performance of a group of students against given criteria.</td>
</tr>
</tbody>
</table>

9 INSTRUMENTS AND TOOLS FOR COLLECTING EVIDENCE
All evidence collected for assessment purposes is kept or recorded in the student’s PoE.

The following table summarises a variety of methods and instruments for collecting evidence. A method and instrument is chosen to give students ample opportunity to demonstrate the Subject Outcome has been attained. This will only be possible if the chosen methods and instruments are appropriate for the target group and the Specific Outcome being assessed.
METHODS FOR COLLECTING EVIDENCE

<table>
<thead>
<tr>
<th>Observation-based (Less structured)</th>
<th>Task-based (Structured)</th>
<th>Test-based (More structured)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment instruments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Observation</td>
<td>• Assignments or tasks</td>
<td>• Examinations</td>
</tr>
<tr>
<td>• Class questions</td>
<td>• Projects</td>
<td>• Class tests</td>
</tr>
<tr>
<td>• Lecturer, student,</td>
<td>• Investigations or</td>
<td>• Practical examinations</td>
</tr>
<tr>
<td>parent discussions</td>
<td>research</td>
<td>• Oral tests</td>
</tr>
<tr>
<td></td>
<td>• Case studies</td>
<td>• Open-book tests</td>
</tr>
<tr>
<td></td>
<td>• Practical exercises</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Demonstrations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Role-play</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Interviews</td>
<td></td>
</tr>
<tr>
<td>Assessment tools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Observation sheets</td>
<td>• Checklists</td>
<td>• Marks (e.g. %)</td>
</tr>
<tr>
<td>• Lecturer's notes</td>
<td>• Rating scales</td>
<td>• Rating scales (1-7)</td>
</tr>
<tr>
<td>• Comments</td>
<td>• Rubrics</td>
<td></td>
</tr>
<tr>
<td>Evidence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Focus on individual students</td>
<td>Open middle: Students</td>
<td>Students answer the same</td>
</tr>
<tr>
<td>• Subjective evidence</td>
<td>produce the same</td>
<td>questions in the same way,</td>
</tr>
<tr>
<td>based on lecturer</td>
<td>evidence but in different</td>
<td>within the same time.</td>
</tr>
<tr>
<td>observations and impressions</td>
<td>ways.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Open end: Students use</td>
<td></td>
</tr>
<tr>
<td></td>
<td>same process to achieve</td>
<td></td>
</tr>
<tr>
<td></td>
<td>different results.</td>
<td></td>
</tr>
</tbody>
</table>

10 TOOLS FOR ASSESSING STUDENT PERFORMANCE

Rating scales are marking systems where a symbol (such as 1 to 7) or a mark (such as 5/10 or 50%) is defined in detail. The detail is as important as the coded score. Traditional marking, assessment and evaluation mostly used rating scales without details such as what was right or wrong, weak or strong, etc.

Task lists and checklists show the student what needs to be done. These consist of short statements describing the expected performance in a particular task. The statements on the checklist can be ticked off when the student has adequately achieved the criterion. Checklists and task lists are useful in peer or group assessment activities.

Rubrics are a hierarchy (graded levels) of criteria with benchmarks that describe the minimum level of acceptable performance or achievement for each criterion. Using rubrics is a different way of assessing and cannot be compared to tests. Each criterion described in the rubric must be assessed separately. Mainly, two types of rubrics, namely holistic and analytical, are used.

11 SELECTING AND/OR DESIGNING RECORDING AND REPORTING SYSTEMS

The selection or design of recording and reporting systems depends on the purpose of recording and reporting student achievement. Why particular information is recorded and how it is recorded determine which instrument will be used.

Computer-based systems, for example spreadsheets, are cost and time effective. The recording system should be user-friendly and information should be easily accessed and retrieved.

12 COMPETENCE DESCRIPTIONS

All assessment should award marks to evaluate specific assessment tasks. However, marks should be awarded against rubrics and not be simply a total of ticks for right answers. Rubrics should explain the competence level descriptors for the skills, knowledge, values and attitudes (SKVAs) that a student must demonstrate to achieve each level of the rating scale.

When lecturers or assessors prepare an assessment task or question, they must ensure that the task or question addresses an aspect of a Subject Outcome. The relevant Assessment Standard must be used to create the rubric to assess the task or question. The descriptions must clearly indicate the minimum level of attainment for each category on the rating scale.
13 STRATEGIES FOR COLLECTING EVIDENCE
A number of different assessment instruments may be used to collect and record evidence. Examples of instruments that can be (adapted and) used in the classroom include:

13.1 Record sheets
The lecturer observes students working in a group. These observations are recorded in a summary table at the end of each project. The lecturer can design a record sheet to observe students’ interactive and problem-solving skills, attitudes towards group work and involvement in a group activity.

13.2 Checklists
Checklists should have clear categories to ensure that the objectives are effectively met. The categories should describe how the activities are evaluated and against what criteria they are evaluated. Space for comments is essential.

SECTION C: ASSESSMENT IN CONSTRUCTION PLUMBING

1 SCHEDULE OF ASSESSMENT
At NQF levels 2, 3 and 4, lecturers will conduct assessments as well as develop a schedule of formal assessments that will be undertaken in the year. All three levels also have an external examination that accounts for 50 percent of the total mark. The marks allocated to assessment tasks completed during the year, kept or recorded in a PoE account for the other 50 percent.

The PoE and the external assessment include practical and written components. The practical assessment in Construction Plumbing must, where necessary, be subjected to external moderation by Umalusi or an appropriate Education and Training Quality Assurance (ETQA) body, appointed by the Umalusi Council in terms of Section 28(2) of the General and Further Education and Training Quality Assurance Act, 2001 (Act No. 58 of 2001).

2 RECORDING AND REPORTING
Construction Plumbing, as is the case for all the other Vocational subjects, is assessed according to five levels of competence. The level descriptions are explained in the following table.

Scale of Achievement for the Vocational component

<table>
<thead>
<tr>
<th>RATING CODE</th>
<th>RATING</th>
<th>MARKS %</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Outstanding</td>
<td>80-100</td>
</tr>
<tr>
<td>4</td>
<td>Highly competent</td>
<td>70-79</td>
</tr>
<tr>
<td>3</td>
<td>Competent</td>
<td>50-69</td>
</tr>
<tr>
<td>2</td>
<td>Not yet competent</td>
<td>40-49</td>
</tr>
<tr>
<td>1</td>
<td>Not achieved</td>
<td>0-39</td>
</tr>
</tbody>
</table>

The programme of assessment should be recorded in the Lecturer’s Portfolio of Assessment for each subject. The following at least should be included in the Lecturer’s Assessment Portfolio:

- A contents page
- The formal schedule of assessment
- The requirements for each assessment task
- The tools used for each assessment task
- Recording instrument(s) for each assessment task
- A mark sheet and report for each assessment task

The college must standardise these documents.

The student’s PoE must include at least:

- A contents page
- The assessment tasks according to the assessment schedule
• The assessment tools or instruments for the task
• A record of the marks (and comments) achieved for each task

Where a task cannot be contained as evidence in the PoE, its exact location must be recorded and it must be readily available for moderation purposes.
ASSESSMENT OF CONSTRUCTION PLUMBING

LEVEL 3
### 3 INTERNAL ASSESSMENT OF SUBJECT OUTCOMES IN CONSTRUCTION PLUMBING - LEVEL 3

**Topic 1: Plan and prepare to perform plumbing works**

<table>
<thead>
<tr>
<th>SUBJECT OUTCOME</th>
<th>ASSESSMENT STANDARD</th>
<th>LEARNING OUTCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.1 Set out work for plumbing.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ASSESSMENT STANDARD</strong></td>
<td><strong>LEARNING OUTCOME</strong></td>
<td></td>
</tr>
<tr>
<td>The correct work area is identified according to the drawings.</td>
<td>Identify the correct work area according to the drawings.</td>
<td></td>
</tr>
<tr>
<td>A work task is communicated and agreed according to work site procedures.</td>
<td>Communicate and agree on a work task according to work site procedures.</td>
<td></td>
</tr>
<tr>
<td>The work area is measured and set out according to the drawings and specifications.</td>
<td>Measure and set out the work area according to the drawings and specifications.</td>
<td></td>
</tr>
<tr>
<td>Levels are determined and transferred according to work site procedures.</td>
<td>Determine and transfer levels according to work site procedures.</td>
<td></td>
</tr>
</tbody>
</table>

**ASSESSMENT TASKS OR ACTIVITIES**

Assessment in this subject will be as follows, and not restricted to:

**OBSERVATION BASED**
- Observation
- Class questions
- Educator and student discussions

**TASK-BASED**
- Assignments/Tasks
- Projects
- Practical exercises
- Demonstrations
- Role-play

**TEST-BASED**
- Examinations
- Class Tests
- Practical Examinations
- Oral Tests
- Open Book Tests

<table>
<thead>
<tr>
<th>SUBJECT OUTCOME</th>
<th>ASSESSMENT STANDARD</th>
<th>LEARNING OUTCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.2 Procure resources for plumbing.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ASSESSMENT STANDARD</strong></td>
<td><strong>LEARNING OUTCOME</strong></td>
<td></td>
</tr>
<tr>
<td>Correct tools and equipment are procured according to site requirements.</td>
<td>Procure correct tools and equipment according to site requirements.</td>
<td></td>
</tr>
<tr>
<td>Quantities of materials are calculated, ordered and prepared according to site procedures.</td>
<td>Calculate, order and prepare quantities of materials according to site procedures.</td>
<td></td>
</tr>
<tr>
<td>Labour is recruited according to the job requirements.</td>
<td>Recruit labour according to the job requirements.</td>
<td></td>
</tr>
</tbody>
</table>
ASSESSMENT TASKS OR ACTIVITIES

Assessment in this subject will be as follows, and not restricted to:

OBSERVATION BASED
- Observation
- Class questions
- Educator and student discussions

TASK-BASED
- Assignments/ Tasks
- Projects
- Practical exercises
- Demonstrations
- Role-play

TEST-BASED
- Examinations
- Class Tests
- Practical Examinations
- Oral Tests
- Open Book Tests

SUBJECT OUTCOME

1.3 Prepare work areas for plumbing.

<table>
<thead>
<tr>
<th>ASSESSMENT STANDARD</th>
<th>LEARNING OUTCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work that affects other contractors or artisans is identified and communicated according to work site procedures.</td>
<td>Identify and communicate work that affects other contractors or artisans according to work site procedures.</td>
</tr>
<tr>
<td>Correct materials, tools and equipment are selected and used according to best site practice.</td>
<td>Select and use correct materials, tools and equipment according to best site practice.</td>
</tr>
<tr>
<td>Safety equipment and clothing are selected according to the Occupational Health and Safety Act and site procedures.</td>
<td>Select and prepare safety equipment and clothing according to the Occupational Health and Safety Act and site procedures.</td>
</tr>
<tr>
<td>Existing services and built-in items are identified and protect from damage according to site procedures.</td>
<td>Identify and protect against damage to existing services and built-in items according to site procedures.</td>
</tr>
</tbody>
</table>

ASSESSMENT TASKS OR ACTIVITIES

Assessment in this subject will be as follows, and not restricted to:

OBSERVATION BASED
- Observation
- Class questions
- Educator and student discussions

TASK-BASED
- Assignments/ Tasks
- Projects
- Practical exercises
- Demonstrations
- Role-play

TEST-BASED
- Examinations
- Class Tests
- Practical Examinations
- Oral Tests
- Open Book Tests
Topic 2: Repairs to waste, soil and drain pipes

<table>
<thead>
<tr>
<th>SUBJECT OUTCOMES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2.1 PVC cut out the damaged section of pipe and repair, using a Kimberley socket.</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ASSESSMENT STANDARD</th>
<th>LEARNING OUTCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Appropriate distance is marked on either side of the damaged pipe to enable the removal of one of the existing pipes.</td>
<td>• Mark appropriate distance on either side of the damaged pipe to enable the removal of one of the existing pipes.</td>
</tr>
<tr>
<td>• The damaged section of the pipe is cut and the spigot of remaining pipe is chamfered as well as the burrs from the inside of the spigot.</td>
<td>• Cut out the damaged section of the pipe and chamfer the spigot of remaining pipe as well as the burrs from the inside of the spigot.</td>
</tr>
<tr>
<td>• New pipe is cut and prepared for joining and fitting, applying appropriate lubricant liberally to both spigot and pipe.</td>
<td>• Cut out new pipe and prepare it for joining and fitting, applying appropriate lubricant liberally to both spigot and pipe.</td>
</tr>
<tr>
<td>• New pipe and the Kimberley socket are adjusted so that both entry marks are just visible.</td>
<td>• Adjust new pipe and the Kimberley socket so that both entry marks are just visible.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ASSESSMENT TASKS OR ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment in this subject will be as follows, and not restricted to:</td>
</tr>
<tr>
<td>OBSERVATION BASED</td>
</tr>
<tr>
<td>• Observation</td>
</tr>
<tr>
<td>• Class questions</td>
</tr>
<tr>
<td>• Educator and student discussions</td>
</tr>
<tr>
<td>TASK-BASED</td>
</tr>
<tr>
<td>• Assignments/Tasks</td>
</tr>
<tr>
<td>• Projects</td>
</tr>
<tr>
<td>• Practical exercises</td>
</tr>
<tr>
<td>• Demonstrations</td>
</tr>
<tr>
<td>• Role-play</td>
</tr>
<tr>
<td>TEST-BASED</td>
</tr>
<tr>
<td>• Examinations</td>
</tr>
<tr>
<td>• Class Tests</td>
</tr>
<tr>
<td>• Practical Examinations</td>
</tr>
<tr>
<td>• Oral Tests</td>
</tr>
<tr>
<td>• Open Book Tests</td>
</tr>
</tbody>
</table>

Topic 3: Install geysers

<table>
<thead>
<tr>
<th>SUBJECT OUTCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3.1 Install a push through geyser in accordance with the drawing.</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ASSESSMENT STANDARD</th>
<th>LEARNING OUTCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Push through geyser is positioned and fitted in accordance with the drawing.</td>
<td>• Position and fit push through geyser in accordance with the drawing.</td>
</tr>
<tr>
<td>• Geyser is secured plumb to the wall using the brackets supplied.</td>
<td>• Secure geyser plumb to the wall using the brackets supplied.</td>
</tr>
<tr>
<td>• Appropriate jointing material is used and the access material is removed.</td>
<td>• Use appropriate jointing material and remove the access material.</td>
</tr>
<tr>
<td>• All surface pipe-works are mounted 25mm away from and parallel to the wall by secured appropriate holder bats.</td>
<td>• Mount all surface pipe-works 25mm away from and parallel to the wall by secured appropriate holder bats.</td>
</tr>
</tbody>
</table>
ASSESSMENT TASKS OR ACTIVITIES
Assessment in this subject will be as follows, and not restricted to:

OBSERVATION BASED
- Observation
- Class questions
- Educator and student discussions

TASK-BASED
- Assignments/tasks
- Projects
- Practical exercises
- Demonstrations
- Role-play

TEST-BASED
- Examinations
- Class tests
- Practical examinations
- Oral tests
- Open book tests

SUBJECT OUTCOME
3.2 Install a high pressure geyser, cold water supply and hot water distributing pipes according to the drawing.

<table>
<thead>
<tr>
<th>ASSESSMENT STANDARD</th>
<th>LEARNING OUTCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td>High pressure geyser is fitted in the roof space.</td>
<td>Fit high pressure geyser in the roof space.</td>
</tr>
<tr>
<td>The geyser is supported on tie beams.</td>
<td>Support the geyser on tie beams.</td>
</tr>
<tr>
<td>An overflow pipe is installed from the drip tray so that the overflow water falls and terminates outside the building.</td>
<td>Install an overflow pipe from the drip tray so that the overflow water falls and terminates outside the building.</td>
</tr>
<tr>
<td>The cold water supply is installed to the geyser, basin, bath and sink.</td>
<td>Install the cold water supply to the geyser, basin, bath and sink.</td>
</tr>
<tr>
<td>The hot water distributing pipe fittings are installed with a vacuum breaker to the sink, bath and basin.</td>
<td>Install the hot water distributing pipe fittings with a vacuum breaker to the sink, bath and basin.</td>
</tr>
<tr>
<td>TP master valve is fitted to the top of the geyser and a pressure control valve fitted.</td>
<td>Fit a TP master valve to the top of the geyser and a pressure control valve.</td>
</tr>
<tr>
<td>Stop cock is fitted in the correct direction of the flow.</td>
<td>Fit a stop cock in the correct direction of the flow.</td>
</tr>
</tbody>
</table>

ASSESSMENT TASKS OR ACTIVITIES
Assessment in this subject will be as follows, and not restricted to:

OBSERVATION BASED
- Observation
- Class questions
- Educator and student discussions

TASK-BASED
- Assignments/Tasks
- Projects
- Practical exercises
- Demonstrations
- Role-play

TEST-BASED
- Examinations
- Class Tests
- Practical Examinations
- Oral Tests
- Open Book Tests
### Topic 4: Install rainwater goods and flashings

#### SUBJECT OUTCOME

<table>
<thead>
<tr>
<th>ASSESSMENT STANDARD</th>
<th>LEARNING OUTCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 Fit GMS gutters and down pipe in accordance with the drawing.</td>
<td></td>
</tr>
<tr>
<td>• A stop-end is fabricated from GMS flat sheet, fitted and soldered.</td>
<td>• Fabricate a stop-end from GMS flat sheet, fitted and soldered.</td>
</tr>
<tr>
<td>• Appropriate gutter brackets are fitted with the front ends bolted through the gutter.</td>
<td>• Fit appropriate gutter brackets with the front ends bolted through the gutter.</td>
</tr>
<tr>
<td>• The gutters are fixed with a minimum fall of 5mm overall towards the outlet.</td>
<td>• Fix the gutters with a minimum fall of 5mm overall towards the outlet.</td>
</tr>
<tr>
<td>• The hole for the gutter outlet is neatly cut 300mm from the stop-end.</td>
<td>• Cut the hole for the gutter outlet neatly 300mm from the stop-end.</td>
</tr>
<tr>
<td>• The gutter outlet is soldered sound and free of defects and the excess flux is removed from the gutter joints.</td>
<td>• Solder gutter outlet sound and free of defects and remove the excess flux from the gutter joints.</td>
</tr>
<tr>
<td>• The rainwater offset is measured, cut assembled and soldered.</td>
<td>• Measure, cut, assemble and solder the rainwater offset.</td>
</tr>
<tr>
<td>• The rainwater pipe and shoe measured, cut, assembled and soldered sound and free from defects and excess flux.</td>
<td>• Measure, cut, assemble and solder the rainwater pipe and shoe sound and free from defects and excess flux.</td>
</tr>
<tr>
<td>• The rainwater pipe is fitted plumb at the back 25mm away from the wall with holder bats securely tightened and the shoe 150mm above the ground level.</td>
<td>• Fit the rainwater pipe plumb at the back 25mm away from the wall with holder bats securely tightened and the shoe 150mm above the ground level.</td>
</tr>
</tbody>
</table>

#### ASSESSMENT TASKS OR ACTIVITIES

Assessment in this subject will be as follows, and not restricted to:

**OBSERVATION BASED**
- Observation
- Class questions
- Educator and student discussions

**TASK-BASED**
- Assignments/tasks
- Projects
- Practical exercises
- Demonstrations
- Role-play

**TEST-BASED**
- Examinations
- Class tests
- Practical examinations
- Oral tests
- Open book tests
SUBJECT OUTCOME

4.2 Mark out, cut fold and fit the bottom half of the cover flashing

**ASSESSMENT STANDARD**
- The bottom half of cover flashing is laid over the roof covering by a minimum of 180mm with the up-stand a minimum of 50 mm bent to the roof angle. Flashing to extend either side of the chimney by a minimum of 18mm.
- The side cover flashing is laid over the roof by a minimum of 180mm with the up-stand a minimum of 50mm.
- The mitre is formed and soldered to fit at the corners free of defects.
- The back gutter is fitted to continue up the roof by a minimum of 200mm with the up-stand a minimum of 80mm and bent to the roof angle. It has to extend either side of the chimney by a minimum of 180mm.
- The side cover flashing is laid over the roof covering by a minimum of 180mm with the upstand a minimum of 50mm and the side centre laps a minimum of 150mm. All soldering sound and free of defects.

**LEARNING OUTCOME**
- Lay bottom half of cover flashing over the roof covering by a minimum of 180mm with the up-stand a minimum of 50 mm bent to the roof angle. Flashing to extend either side of the chimney by a minimum of 18mm.
- Lay the side cover flashing over the roof by a minimum of 180mm with the up-stand a minimum of 50mm.
- Form and solder the mitre to fit at the corners free of defects.
- Fit the back gutter to continue up the roof by a minimum of 200mm with the up-stand a minimum of 80mm and bent to the roof angle. It has to extend either side of the chimney by a minimum of 180mm.
- Lay the side cover flashing over the roof covering by a minimum of 180mm with the upstand a minimum of 50mm and the side centre laps a minimum of 150mm. All soldering to be sound and free of defects.

ASSESSMENT TASKS OR ACTIVITIES

Assessment in this subject will be as follows, and not restricted to:

**OBSERVATION BASED**
- Observation
- Class questions
- Educator and student discussions

**TASK-BASED**
- Assignments/tasks
- Projects
- Practical exercises
- Demonstrations
- Role-play

**TEST-BASED**
- Examinations
- Class tests
- Practical examinations
- Oral tests
- Open book tests

SUBJECT OUTCOME

4.3 Mark out, cut, fold and fit the front apron flashing.

**ASSESSMENT STANDARD**
- The apron flashing is termed round both sides of the chimney by a minimum of 50mm with the bottom edge finish 10mm above the corner flashing.

**LEARNING OUTCOME**
- Turn the apron flashing round both sides of the chimney by a minimum of 50mm with the bottom edge finish 10mm above the corner flashing.
## ASSESSMENT TASKS OR ACTIVITIES

Assessment in this subject will be as follows, and not restricted to:

**OBSERVATION BASED**
- Observation
- Class questions
- Educator and student discussions

**TASK-BASED**
- Assignments/tasks
- Projects
- Practical exercises
- Demonstrations
- Role-play

**TEST-BASED**
- Examinations
- Class tests
- Practical examinations
- Oral tests
- Open book tests

## SUBJECT OUTCOME

### 4.4 Mark out, cut, fold and fit both sides of the step flashing.

<table>
<thead>
<tr>
<th>ASSESSMENT STANDARD</th>
<th>LEARNING OUTCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td>The first steps are turned around the front of the chimney by a minimum of 75mm with the bottom edges finish 10mm above the cover flashing. The steps must lap each other by a minimum of 75mm.</td>
<td>Turn the first steps around the front of the chimney by a minimum of 75mm with the bottom edges finishing 10mm above the cover flashing. The steps must lap each other by a minimum of 75mm.</td>
</tr>
<tr>
<td>The fourth step is turned around the back of the chimney by a minimum of 75mm with the bottom edges finish 10mm above the cover flashing. The steps must lap the third steps by a minimum of 75mm.</td>
<td>Turn the fourth step around the back of the chimney by a minimum of 75mm with the bottom edges finishing 10mm above the cover flashing. The steps must lap the third steps by a minimum of 75mm.</td>
</tr>
</tbody>
</table>

## ASSESSMENT TASKS OR ACTIVITIES

Assessment in this subject will be as follows, and not restricted to:

**OBSERVATION BASED**
- Observation
- Class questions
- Educator and student discussions

**TASK-BASED**
- Assignments/tasks
- Projects
- Practical exercises
- Demonstrations
- Role-play

**TEST-BASED**
- Examinations
- Class tests
- Practical examinations
- Oral tests
- Open book tests
### SUBJECT OUTCOME

**4.5 Mark out, cut, fold and fit the apron flashing.**

<table>
<thead>
<tr>
<th>ASSESSMENT STANDARD</th>
<th>LEARNING OUTCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The flashing is turned around both sides of the chimney by a minimum of 50mm with the bottom edge finish 10mm above the bottom of the gutter.</td>
<td>• Turn the flashing around both sides of the chimney by a minimum of 50mm with the bottom edge finish 10mm above the bottom of the gutter.</td>
</tr>
<tr>
<td>• The apron flashing is securely wedged.</td>
<td>• Securely wedge the apron flashing.</td>
</tr>
<tr>
<td>• The joints are pointed.</td>
<td>• Point all the joints.</td>
</tr>
</tbody>
</table>

#### ASSESSMENT TASKS OR ACTIVITIES

Assessment in this subject will be as follows, and not restricted to:

**OBSERVATION BASED**
- Observation
- Class questions
- Educator and student discussions

**TASK-BASED**
- Assignments/tasks
- Projects
- Practical exercises
- Demonstrations
- Role-play

**TEST-BASED**
- Examinations
- Class tests
- Practical examinations
- Oral tests
- Open book tests

### SUBJECT OUTCOME

**4.6. Develop, cut out, fold, assemble, solder and fit GMS vent pipe flashing in accordance with the drawing.**

<table>
<thead>
<tr>
<th>ASSESSMENT STANDARD</th>
<th>LEARNING OUTCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The flashing is soldered sound and free of defects with all the excess flux removed.</td>
<td>• Solder the flashing sound and free of defects with all the excess flux removed.</td>
</tr>
<tr>
<td>• The cone of the vent pipe flashing is fitted close to the vent pipe.</td>
<td>• Fit the cone of the vent pipe flashing close to the vent pipe.</td>
</tr>
<tr>
<td>• The bottom and sides of the flashing are neatly fitted onto the roof covering.</td>
<td>• Fit the bottom and sides of the flashing neatly onto the roof covering.</td>
</tr>
<tr>
<td>• The roof covering is neatly fitted over the top of the flashing.</td>
<td>• Fit the roof covering neatly over the top of the flashing.</td>
</tr>
<tr>
<td>• The bottom edge of the cone is staggered alternately with 10mm laps.</td>
<td>• Stagger the bottom edge of the cone alternately with 10mm laps.</td>
</tr>
</tbody>
</table>
### ASSESSMENT TASKS OR ACTIVITIES

Assessment in this subject will be as follows, and not restricted to:

**OBSERVATION BASED**
- Observation
- Class questions
- Educator and student discussions

**TASK-BASED**
- Assignments/tasks
- Projects
- Practical exercises
- Demonstrations
- Role-play

**TEST-BASED**
- Examinations
- Class tests
- Practical examinations
- Oral tests
- Open book tests

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### Topic 5: Apply basic business principles

<table>
<thead>
<tr>
<th>SUBJECT OUTCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 Explain how to start up a small business and apply basic business principles.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ASSESSMENT STANDARD</th>
<th>LEARNING OUTCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td>The set up and conducting of a small business accordance with healthy business standards is described.</td>
<td>Describe how to set up and conduct a small business offering services in accordance with healthy business standards.</td>
</tr>
</tbody>
</table>

An elementary business plan to start a business is drawn up.  
*Range: Name and logo for business, contact details, services rendered, start-up capital, equipment and tools, price structures, advertising, staff and staff remuneration, competitors, profit and loss*

<table>
<thead>
<tr>
<th>ASSESSMENT TASKS OR ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OBSERVATION BASED</strong></td>
</tr>
<tr>
<td>Observation</td>
</tr>
<tr>
<td>Class questions</td>
</tr>
<tr>
<td>Educator and student discussions</td>
</tr>
</tbody>
</table>

**TASK-BASED**
- Assignments/tasks
- Projects
- Practical exercises
- Demonstrations
- Role-play

**TEST-BASED**
- Examinations
- Class tests
- Practical
### SUBJECT OUTCOME

#### 5.2 Explain record keeping of business activities.

<table>
<thead>
<tr>
<th>ASSESSMENT STANDARD</th>
<th>LEARNING OUTCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Different methods of payments by customers and related documents to record business transactions are described.</td>
<td>- Describe different methods of payments by customers and related documents to record business transactions.</td>
</tr>
</tbody>
</table>
| - The correct handling of cash flow is explained.  
  *Range: Purchases of materials, payment of wages, unforeseen payments and expenses, shortage and surplus of funds* | - Explain correct handling of cash flow.  
  *Range: Purchases of materials, payment of wages, unforeseen payments and expenses, shortage and surplus of funds* |

#### ASSESSMENT TASKS OR ACTIVITIES

Assessment in this subject will be as follows, and not restricted to:

- **OBSERVATION BASED**
  - Observation
  - Class questions
  - Educator and student discussions

- **TASK-BASED**
  - Assignments/tasks
  - Projects
  - Practical exercises
  - Demonstrations
  - Role-play

- **TEST-BASED**
  - Examinations
  - Class tests
  - Practical

### SUBJECT OUTCOME

#### 5.3 Explain procedures of dealing with customers or clients.

<table>
<thead>
<tr>
<th>ASSESSMENT STANDARD</th>
<th>LEARNING OUTCOME</th>
</tr>
</thead>
</table>
| - Professional dealing with customers and delivering of good customer services are explained.  
  *Range: Contact and communication with customers, planning of work activities, overlap of contracts and services offered, deadlines.* | - Explain professional dealing with customers and delivering of good customer services.  
  *Range: Contact and communication with customers, planning of work activities, overlap of contracts and services offered, deadlines.* |
| - Dealing with customer complaints is explained. | - Explain how to deal with customer complaints. |

#### ASSESSMENT TASKS OR ACTIVITIES

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  - Class questions
  - Educator and student discussions

- **TASK-BASED**
  - Assignments/tasks
  - Projects
  - Practical exercises
  - Demonstrations
  - Role-play

- **TEST-BASED**
  - Examinations
  - Class tests
  - Practical
4 SPECIFICATIONS FOR EXTERNAL ASSESSMENT IN CONSTRUCTION PLUMBING - LEVEL 3

4.1 Integrated summative assessment task (ISAT)
A compulsory component of the external assessment (ESASS) is the integrated summative assessment task (ISAT). The integrated summative assessment task (ISAT) draws on the students’ cumulative learning achieved throughout the year. The task requires integrated application of competence and is executed and recorded in compliance with assessment conditions.

Two approaches to the integrated summative assessment task (ISAT) may be as follows:

- The students are assigned a task at the beginning of the year which they will have to complete in phases throughout the year to obtain an assessment mark. A final assessment is made at the end of the year when the task is completed.

OR

- Students achieve the competencies throughout the year but the competencies are assessed cumulatively in a single assessment or examination session at the end of the year.

The integrated summative assessment task (ISAT) is set by an externally appointed examiner and is conveyed to colleges in the first quarter of the year.

The integrated assessment approach enables students to be assessed in more than one subject with the same integrated summative assessment task (ISAT).

4.2 National Examination
A national examination is conducted annually in October or November by means of a paper(s) set and moderated externally. The following distribution of cognitive application is suggested.

<table>
<thead>
<tr>
<th>LEVEL 3</th>
<th>KNOWLEDGE AND COMPREHENSION</th>
<th>APPLICATION</th>
<th>ANALYSIS, SYNTHESIS AND EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>40%</td>
<td>50%</td>
<td>10%</td>
</tr>
</tbody>
</table>